

# FTML Exercices 5

## 1 PCA

Using the data contained in **Exercices\_5\_data.npy** (they are 2 dimensional) :

- scatter plot the data
- scatter plot the centered data
- perform PCA on the data
- plot the principal components on the scatter plot
- plot the principal components on the scatter plot with the same x and y scale
- compute the variance ratio explained by each component
- verify that the computation of the norm of each sample in the canonical basis and the pca basis both give the same result, up to numerical rounding errors.

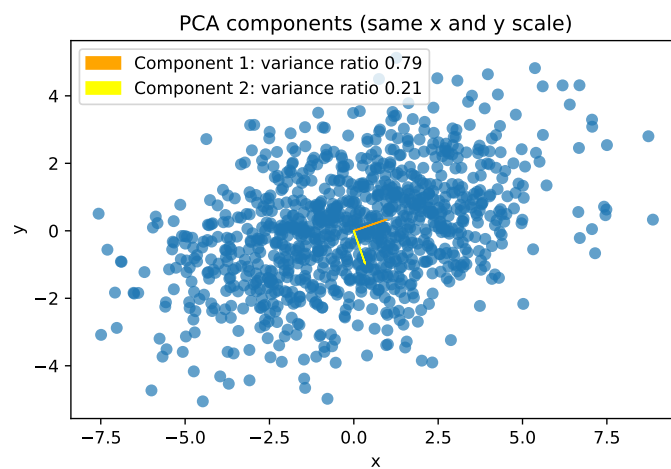


FIGURE 1 – Data to process